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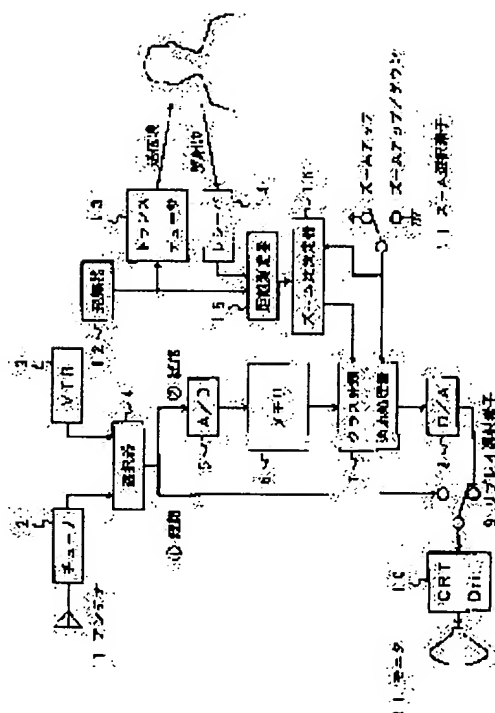
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(54) REPLAY MECHANISM FOR VIDEO EQUIPMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a replay mechanism by which a user easily views a scene which he wants to see through closeup.

SOLUTION: This video equipment is made up of an antenna 1, a tuner 2, a VTR 3, a selector 4 selecting them, and an A/D converter 5, a memory 6, a classification adaptive processing unit 7, a D/A converter 8 being components of a path (2) as the replay mechanism branched from the selector 4, a replay selection element 9 selecting the path (1) or (2), and a CRT driver 10 to drive a monitor 11 of the post-stage such as a CRT. To the classification adaptive processing unit 7, an oscillator 12 as a distance detection means, a transducer 13, a receiver 14, a range measurement device 15 measuring the distance from the result, a zoom ratio decision device 16 and a zoom selection element 17 selecting zoomup/zoom-down are connected.



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CLAIMS

[Claim(s)]

[Claim 1] The compression zone of the image from a received electric wave or a record medium, and a storage means to update serially the image compressed by said compression zone, and to store it, In the recovery section which restores the compressed image by which reading appearance was carried out from said storage means, a range measurement means to measure the distance between the body of image equipment, and a viewer, and the image restored by said recovery section The scaling processing means which measures distance with a viewer, and is zoomed in or zoomed down with said range measurement means following the measurement result when a viewer changes distance with said body of image equipment, The Replay device of the image equipment characterized by providing the Replay selection means which switches the image sent to a monitor to either of the direct image from said received electric wave or a record medium, and the image which went via said scaling processing means.

[Claim 2] The Replay device of the image equipment according to claim 1 characterized by providing a zoom selection means to perform selection of zoom-in of said scaling processing means, or zoom-in / zoom down.

[Claim 3] Said scaling processing means is the Replay device of the image equipment according to claim 1 characterized by carrying out by class classification adaptation processing.

[Claim 4] Said range measurement means is the Replay device of the image equipment according to claim 1 characterized by on the other hand being a formula at least of an ultrasonic sensor, a photoelectrical sensor, and the microwave sensors.

[Claim 5] Claim 1 characterized by providing the picture Inn picture function which displays the both sides of the direct image from said received electric wave or a record medium, and the image which went via said scaling processing means on either a parent screen and a child screen, respectively thru/or the Replay device of image equipment according to claim 4.

[Claim 6] Claim 1 characterized by providing picture - and - picture function which display the both sides of the direct image from said received electric wave or a record medium, and the image which went via said scaling processing means on two screens, respectively thru/or the Replay device of image equipment according to claim 4.

[Claim 7] It has remote commander equipment which operates the body of image equipment, and said body of image equipment by remote control. To said remote commander equipment A range measurement means to measure and transmit distance with said body of image equipment is provided. On the body of image equipment The compression zone of the image from a received electric wave or a record medium, and a storage means to update serially the image compressed by said compression zone, and to store it, In the recovery section which restores the compressed image by which reading appearance was carried out from said storage means, a distance processing means to process the distance information from said range measurement means, and the image restored by said recovery section The scaling processing means which measures distance with a viewer using the distance information from said range measurement means, and is zoomed in or zoomed down following the measurement result

when a viewer changes distance with said body of image equipment, The Replay device of the image equipment characterized by providing the Replay selection means which switches the image sent to a monitor to either of the direct image from said received electric wave or a record medium, and the image which went via said scaling processing means.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is used for record and playback of the image of a television receiver etc., and relates to the Replay device of suitable image equipment.

[0002]

[Description of the Prior Art] In recent years, image equipments, such as a television receiver, are widely used all over the world with multimedia-izing of broadcast by development of an electric communication technic as what gives a user big amusement, information, etc. Moreover, the broadcast program which a television receiver broadcasts is also various, and the attractive program centering on amusement appreciation of a film, a sport relay broadcast, a documentary report, a music program, etc. is offered.

[0003] However, the television receiver which receives the electric wave emitted by the target on the other hand, and is projected as it is from a television station is equipped only with the passive function of viewing and listening to broadcast for a viewer (user). That is, while viewing and listening to broadcast of a sport relay broadcast, a documentary report, etc. with the television receiver, it leans out and a decisive flash is often seen. In such a case, it is clear by detecting and judging access of a user by the receiving set side, and zooming in a display image to come to be able to carry out the vision of the detail, without moving the body conventionally. The main point of this invention is related with the technique for satisfying a demand of such a viewer. In addition, this invention relates to the "Replay device of image equipment" currently indicated by the JP,4-252198,A official report for which these people applied previously.

[0004]

[Problem(s) to be Solved by the Invention] It is in this invention having been made in view of this viewpoint, offering the Replay device of image equipment in which it can view and listen to the scene which thought that a user wanted for the technical problem to approach and to see it easily, and offering the image equipment in which a user's needs were made to reflect more.

[0005]

[Means for Solving the Problem] In order to solve this technical problem, the Replay device of the image equipment of the 1st invention The compression zone of the image from a received electric wave or a record medium, and a storage means to update serially the image compressed by the compression zone and to store it (memory), In the recovery section which restores the compressed image by which reading appearance was carried out from memory, a range measurement means to measure the distance between the body of image equipment, and a viewer, and the image restored by the recovery section The scaling processing means which measures distance with a viewer, and is zoomed in or zoomed down according to the measurement result with a range measurement means when a viewer changes distance with the body of image equipment, The Replay selection means which switches the image sent to a monitor to either of the direct image from a received electric wave or a record medium and the image which went via the scaling processing means was provided.

[0006] In the image restored by the recovery section, a zoom selection means to perform selection of zoom-in of a scaling processing means, or zoom-in / zoom down is provided, and, as for this scaling processing means, it is desirable to carry out using class classification adaptation processing.

[0007] Furthermore, as for a range measurement means, it is desirable that it is a formula on the other hand at least of an ultrasonic sensor, a photoelectrical sensor, and the microwave sensors.

[0008] In these, the picture Inn picture function which displays the both sides of the direct image from a received electric wave or a record medium and the image which went via the scaling processing means on either a parent screen and a child screen, respectively, picture - which can carry out adjustable [of each screen size] to arbitration while displaying both images on two screens similarly, respectively, and - picture function were provided.

[0009] The Replay device of the image equipment of the 2nd invention is equipped with the remote commander equipment which can operate the body of image equipment, and this body of image equipment by remote control. A range measurement means to measure and transmit distance with the body of image equipment to remote commander equipment is provided. And on the body of image equipment The compression zone of the image from a received electric wave or a record medium, and a storage means to update serially the image compressed by the compression zone and to store it, In the recovery section which restores the compressed image by which reading appearance was carried out from the storage means, a distance processing means to process the distance information from a range measurement means, and the image restored by the recovery section The scaling processing means which measures distance with a viewer using the distance information, and is zoomed in or zoomed down according to the result when a viewer changes distance with the body of image equipment, The Replay selection means which switches the image sent to a monitor to either of the direct image from a received electric wave or a record medium and the image which went via the scaling processing means was provided.

[0010] When according to the Replay device of the image equipment of the 1st invention the Replay image was chosen with the Replay selection means, the distance of the body of image equipment and a viewer is measured and a viewer changes distance with the body of image equipment with a range measurement means, with a scaling processing means, the image to restore is zoomed in or zoomed down by the predetermined zoom ratio, and it displays on the display screen. Actuation of being as separate **** [and] by this is mitigable. [that a user approaches a monitor beyond the need]

[0011] By preparing a zoom-in transfer switch, a user can do selection of the Replay image of ordinary magnitude, and the Replay image which zoomed in.

[0012] By preparing multi-screen-display functions, such as a picture Inn picture, and picture -, - picture, a user can see simultaneously the Replay image and a received electric wave, or the direct image from a record medium. In a picture Inn picture, while it can be reversed, when it displays on two screens in picture - and - picture, since especially a parent-and-child screen can carry out adjustable [of each screen size] to arbitration, it can enlarge a desired image.

[0013] According to the Replay device of the image equipment of the 2nd invention, it has a body of image equipment, and remote commander equipment, and distance with the body of image equipment was measured with this remote commander equipment. And when a user changes distance with the body of image equipment, with a scaling processing means, the image to restore is zoomed in or zoomed down by the predetermined zoom ratio, and it displays on the display screen. Thereby, while being able to simplify the configuration of the body of image equipment, a user's location can be grasped to accuracy.

[0014]

[Embodiment of the Invention] Hereafter, with reference to an accompanying drawing, the gestalt of operation of the Replay device of the image equipment of this invention is explained.

[0015] the example 1 of a gestalt of operation -- with reference to drawing 1 , the configuration of the example 1 of a gestalt of operation of the Replay device of the image equipment of this invention is explained first. Drawing 1 is the block circuit diagram showing the example 1 of a gestalt of operation of the Replay device of the image equipment of this invention.

[0016] The configuration of the Replay device of the image equipment of this invention As the antenna 1 which receives a broadcast signal, the tuner 2 which restores to a broadcast signal, and a record medium As the selector 4 which chooses ** VTR 3 and these, A/D converter 5 which performs analog -> digital conversion of the input signal which forms path ** which branches from a selector 4, the storage means slack memory 6, and a scaling processing means to perform class classification adaptation processing mentioned later It consists of CRT drivers 10 which drive the monitors 11 which choose the ** class classification adaptation treater 7, D/A converter 8 which performs digital -> analogue conversion, path **, and path **, such as CRT of the Replay selection component 9 and the latter part.

[0017] Furthermore, the zoom selection component 17 which supplies the selection signal of zoom-in and zoom-in / down is connected and constituted from an oscillator 12, a transducer 13, these receivers 14, and these results by the distance measuring instrument 15 which performs range measurement, the zoom ratio decision machine 16, and the zoom ratio decision machine 16 as a distance detection means at the class classification adaptation treater 7.

[0018] Actuation of the Replay device of the image equipment of this invention of this configuration is explained.

[0019] With an antenna 1, a broadcast signal is received, a RF signal is generated and the RF signal is outputted to the tuner 2 of the next step. Interpolation of the tuner which restores to a RF signal, a song selection circuit, or the CATV decoder is carried out to the tuner 2, song selection and a recovery are made in these circuits, and a video signal and a sound signal are outputted to the output of a tuner 2. The information on a request of a user is recorded and reproduced with VTR3. these output signals -- a selector 4 -- being alike -- **** -- be chosen and the selection signal of path ** should pass the direct Replay selection component 9 further -- it is displayed on a monitor 11 by the CRT driver 10.

[0020] On the other hand, path ** is for realizing a zoom function, and a video signal is specifically stored in memory 6 as image data after digital conversion by A/D converter 5. At this time, the information memorized by memory 6 is updated serially and always new information is stored. Moreover, since the compression means is formed in memory 6, in proportion to the amount of compression, storage of the longer time amount of the original image is possible.

[0021] Blocking processing predetermined [centering on an attention pixel] in the video signal by which reading appearance was carried out from memory 6 is made, and class classification processing is performed by the scaling processing means slack class classification adaptation treater 7 of the next step to this block. Since it is the same as that of the technique for which should thin out the class classification adaptation processing in this invention, or should perform it by interpolation processing, and these people applied previously, explanation here is omitted.

[0022] The decision of the ratio (zoom ratio) of cutback amplification for [which is depended on the class classification adaptation treater 7] thinning out or performing interpolation processing is made as follows. That is, the pulse signal oscillated on the predetermined frequency is changed into infrared radiation or a supersonic wave from an oscillator 12 by the transducer 13, and it sends towards the viewer who is a user as a transmission wave. The transmission wave sent from the transducer 13 is orthopedically operated by the pulse-like wave while it is reflected by the user and it receives the reflected wave with a receiver 14. In the distance measuring instrument 15, the time difference of the signal from an oscillator 12 and the output signal from a receiver 14 is measured in an instant, and the distance between a television receiver and a user is measured from infrared radiation or the transfer rate of a supersonic wave. In addition, control of these actuation is performed based on the control signal of the control section which omitted the graphic display.

[0023] If actuation of a range measurement means is explained in more detail, in a transducer 13, a pulse-like transmission wave will be sent by the ultrasonic sensing element as an example. The frequency of the supersonic wave used here is usually 30kHz - about 300kHz in consideration of the propagation loss in air, and the piezo-electric MAG (PZT) etc. is chosen as generating and detection of a supersonic wave in consideration of an electromechanical coupling coefficient, temperature stability, etc.

[0024] The reflected wave reflected by the user is received by the receiver 14. Count processing of the input signal is carried out based on the pulse which an oscillator 12 emits further by limiter processing and magnification processing being made by the processing circuit built in the receiver 14, and the result is inputted into the distance measuring instrument 15 with the signal of an oscillator 12. In the distance detection measuring instrument 15, the amount of delay of the signal from an oscillator 12 and the output signal from a treater 23 is computed in digital one, and the distance between users is measured.

[0025] The distance information from the distance measuring instrument 15 is transmitted to the zoom ratio decision machine 16, and when the change more than the threshold (threshold level) set up beforehand breaks out, the zoom ratio decision machine 16 operates so that a zoom ratio may change. When zoom-in is chosen by the zoom selection component 17 and distance information specifically becomes small below at a threshold compared with usual, a zoom ratio is changed and outputted to a numeric value which is expanded according to the distance. In this case, only when a user approaches, it is controlled to expand (only in case of zoom-in).

[0026] When zoom-in/down is chosen by the zoom selection component 17 as another case on the other hand and distance information becomes larger (or small) than a threshold compared with usual, a zoom ratio is changed and outputted to a numeric value (or cutback) which is expanded according to distance with a user. in such a case -- always -- distance with a viewer -- responding -- zoom-in -- it is controlled to carry out a zoom down. The screen size of the appearance of a television receiver shall not change at this time. Thus, according to the determined zoom ratio, processing of zooming by class classification adaptation processing etc. is performed.

[0027] Then, with D/A converter 8, digital -> analog transform processing is carried out, it is inputted into the Replay selection component 9, processing of R, G, B conversion, etc. is made by the CRT driver 10, and a display is made by the monitor 11. Thereby, a user can see the image of the request by which the enlarged display was carried out only by the user itself approaching a monitor 11, without operating actuation keys, such as a zoom Replay carbon button, when an image to often see is encountered. in addition, the thing for which amplification and the image by which the reduced display was carried out add an easy image-processing program -- slow motion playback -- it winds and ***** also becomes possible.

[0028] The example of a gestalt of the two example operation of a gestalt of operation is replaced with the range measurement means formed in the body of image equipment in the example 1 of a gestalt of operation, is an example which formed the range measurement means in remote commander equipment, and explains this with reference to drawing 2. Drawing 2 is the block circuit diagram showing the example 2 of a gestalt of operation of the Replay device of the image equipment of this invention, (a) is the conceptual diagram and (b) is the block circuit diagram showing the important section.

[0029] In this drawing 2, agreement 20 is the television receiver of this invention, and a sign 30 is remote commander equipment. The important section configuration of the television receiver of this invention consists of the light sensing portion 21 which receives a remote control signal / distance information, a receiver 22 which processes an input signal, a distance measuring instrument 15 as the above-mentioned range measurement means, and a control section (microcomputer) 23 which controls these.

[0030] On the other hand, as shown in drawing 2 (b), the profile configuration of the important section configuration of remote commander equipment 30 is carried out from the key 31 and the transmitting treater (microcomputer) 32 which a user operates, a driver 33, and a transmitter 34.

[0031] Actuation of the Replay device of the image equipment of this invention of such a configuration is explained.

[0032] When it is going to change the channel of a television receiver 20 when a user does normal operation using remote commander equipment 30 for example, the channel figure of the key 31 of remote commander equipment 30 is pressed and operated. Following this press actuation, a predetermined control code is generated by the transmitting treater 32, becomes irregular to a luminance signal through a driver 33, and is emitted from a transmitter 34 as a remote control signal. While receiving this remote control signal by the light sensing portion 21 of a television receiver 20, decoding

of the remote control signal is carried out with a receiver 22, and the channel of a television receiver 20 is changed by processing with a controller 23.

[0033] Moreover, when remote commander equipment 30 tends to be operated and it is going to transmit distance information to a television receiver 20, a television receiver 20 is told about operating the location carbon button (graphic display abbreviation) which is inherent in a key 31, and disseminating distance information. That is, with the transmitting treater 32, a reference pulse and a pulse train are continued, and it oscillates, it processes in a driver, and sends as distance information from a transmitter 34. In a television receiver 20, this distance information is received by the light sensing portion 21, and it decodes with a receiver 22. In the distance measuring instrument 15, distance with the user who is operating remote commander equipment 30 by counting a pulse train by making a reference pulse into a trigger under control of a control section 23 etc. is detected. In addition, the distance detection using remote commander equipment of other configurations which carry out the same work being used is natural, without restricting to what was mentioned above. Moreover, zoom-in/down carbon button is prepared in remote commander equipment, and it may be made to carry out a direct control to it.

[0034] Although the example of a gestalt of the above-mentioned operation explained the technique of using a supersonic wave as an example of a range measurement means, naturally the photoelectrical sensor using other configurations, for example, light, the distance robot using microwave, etc. may be used. Moreover, this invention is not limited to the example of a gestalt of said operation, but can take various operation gestalten. For example, although the television receiver was illustrated as an example of image equipment in the example of a gestalt of said operation, the image from record media, such as VTR and a disk unit, is applicable also to electronic equipment with a display function, such as projector equipment besides the image equipment projected on display monitors, such as CRT, a portable telephone, and a laptop computer. Furthermore, it cannot be overemphasized that it is not caught by the above 1 operation gestalt, but can develop into various gestalten.

[0035]

[Effect of the Invention] According to the Replay device of the image equipment of the 1st invention explained above, if the Replay image is chosen with the Replay selection means, the distance of the body of image equipment and a viewer will be measured with a range measurement means. And without a user's approaching a monitor beyond the need or separating, in order to zoom in or zoom down the image to restore by the predetermined zoom ratio and to display on the display screen with a scaling processing means, when a viewer changes distance with the body of image equipment, it comes to be able to carry out the vision of the desired image, and it becomes possible to realize the Replay device of the image equipment which reflected user needs more.

[0036] Moreover, when multi-screens displayed on either a parent screen and a child screen, respectively, such as a picture Inn picture and two screens, also display the both sides of the direct image and the Replay image from a received electric wave or a record medium by multi-screen functions, such as possible picture - and - picture, both sides can be seen simultaneously and the option of image equipment can be raised more.

[0037] According to the Replay device of the image equipment of the 2nd invention, it becomes possible the body of image equipment, and to grasp a user's location to accuracy, while being able to simplify the configuration of the body of image equipment, since it has remote commander equipment and distance with the body of image equipment was measured with this remote commander equipment.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block circuit diagram showing the example 1 of a gestalt of operation of the Replay device of the image equipment of this invention.

[Drawing 2] It is the block circuit diagram showing the example 2 of a gestalt of operation of the Replay device of the image equipment of this invention, and (a) is the conceptual diagram and (b) is the block circuit diagram showing the important section.

[Description of Notations]

- 1 Antenna
- 2 Tuner
- 3 VTR
- 4 Selector
- 5 A/D Converter
- 6 Memory
- 7 Class Classification Adaptation Treater
- 8 D/A Converter
- 9 Replay Selection Component
- 10 CRT Driver
- 11 Monitor
- 12 Oscillator
- 13 Transducer
- 14 22 Receiver
- 15 Distance Measuring Instrument
- 16 Zoom Ratio Decision Machine
- 17 Zoom Selection Component
- 20 Television Receiver
- 21 Light Sensing Portion
- 23 Control Section (Microcomputer)
- 30 Remote Commander Equipment
- 31 Key
- 32 Transmitting Treater (Microcomputer)
- 33 Driver
- 34 Transmitter

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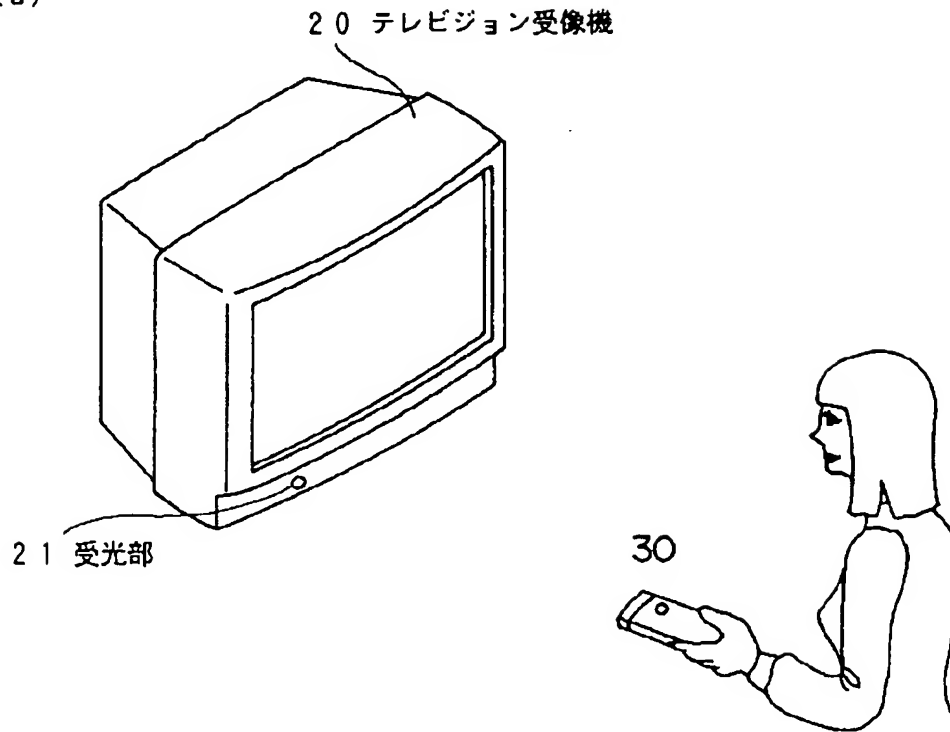
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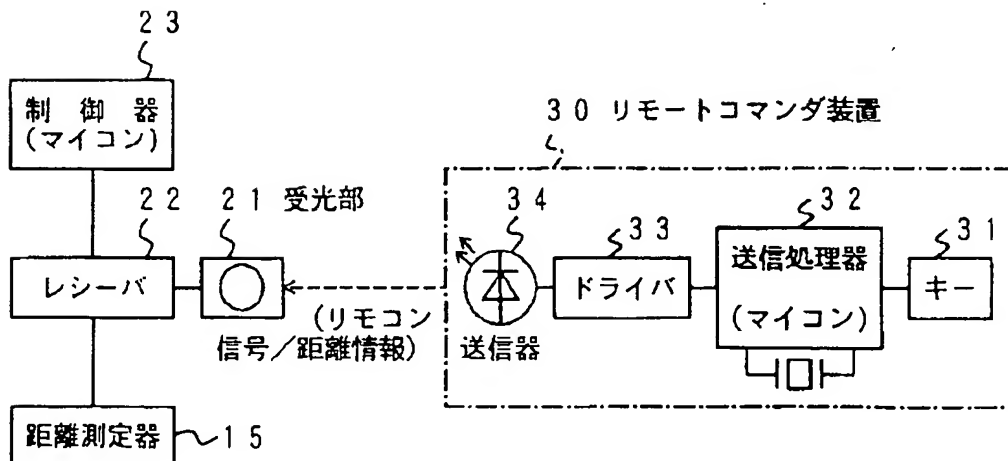
DRAWINGS

[Drawing 1]

(a)



(b)



[Translation done.]